Contents

Foreword and Dedication
by K.T. LEUNG and W.K. LIU xi

Surface Science: A beautiful field
by S.G. DAVISON xiii

1. Plenary Lectures 1

Progress in our Understanding of Structure Bonding and Reactivity of Metal Surfaces and Adsorbed Monolayers at the Molecular Level: A 25 year Perspective
by G.A. SOMORJAI* 3

The Amazing Story of Semiconductor Surface Structures
by C.B. DUKE* 31

Surface and Interface Analysis at 3rd Generation Light Sources
by F.J. HIMPSEL*, H. AKATSU, J.A. CARLISLE, D.G.J. SUTHERLAND, I. JIMENEZ, L.J. TERMINELLO, J.J. JIA, T.A. CALLCOTT, M.G. SAMANT, J. STÖHR, D.L. EDERER, R.C.C. PERERA, W. TONG and D.K. SHUNH 37

2. 25th Anniversary Symposium 53

Electromagnetic Interactions with Rough Metal Surfaces
by F.J. GARCIA-VIDAL and J.B. PENDRY* 55

Tamm Surface States in Semiconductor Superlattices
by M. STĘŚLICKA* 65

Metal-Oxide Surfaces
by V.E. HENRICH* 77

Edges of Two-Dimensional Electron Systems under Strong Magnetic Fields
by I. BARTOŠ* and B. ROSENSTEIN 91

Weak Interactions between Deposited Metal Overlayers and Organic Functional Groups of Self-Assembled Monolayers
by G.C. HERDT, D.R. JUNG and A.W. CZANDERNA* 103

Photochemical Desorption from Chlorinated Si(100) and Si(111) Surfaces - Mechanisms and Models
by T. RHODIN* 131

3. Metals 147

Theory of Image States at Magnetic Surfaces
by M. NEKOVEE and J.E. INGLESFIELD* 149

Growth Modes of Ultrathin Metal Films on Dissimilar Metal Substrates
by A.J. SLAVIN* 159

Water at Surfaces: What can we Learn from Vibrational Spectroscopy?
by F. BENSEBAA and T.H. ELLIS* 173

Rough Silver Films Studied by Surface Enhanced Raman Spectroscopy and Low Temperature Scanning Tunnelling Microscopy
by C. DOUKETIS, T.L. HASLETT, Z. WANG, M. MOSKOVITS and S. IANNOTTA 187

Electron Energy Loss Studies of Room-Temperature CO Adsorption on Cu(100) Induced by Electron or Ion Irradiation
by H. YU, D.Q. HU and K.T. LEUNG 197

Kinetics of the Formation of Butanethiol Monolayers on Gold Substrates, as Studied by Infrared Spectroscopy
by K.D. TRUONG and P.A. ROWNTREE 207

Theory of the Vibrational Line Shape of an Adatom at a Bridge Site
by R. TU and P. PIERCY 217

Effect of Anion Adsorption on Early Stages of Copper Electrocrystallization at Au(111) Surface
by S. WU¶, J. LIPKOWSKI, T. TYLISZCZAK and A.P. HITCHCOCK 227

Adsorption of Insoluble Surfactants at the Au(111)/Solution Interface
by D. BIZZOTTO† and J. LIPKOWSKI 237

What Determines the Structures formed by Oxygen at Low Index Surfaces of Copper?
by W. LIU, K.C. WONG, H.C. ZENG and K.A.R. MITCHELL 247

Optimization of Zinc Phosphate Coating on 7075-T6 Aluminum Alloy
by J.F. YING, B.J. FLINN, M.Y. ZHOU, P.C. WONG, K.A.R. MITCHELL and T. FOSTER 259

Examination of Clinical Surface Preparations on Titanium and Ti6Al4V by X-Ray Photoelectron Spectroscopy and Nuclear Reaction Analysis
by B.W. CALLEN, R.N.S. SODHI and K. GRIFFITHS 269

4. Semiconductors 281

Chemical Etching of Silicon: Smooth, Rough, and Glowing Surfaces
by L.A. JONES, G.M. TAYLOR, F.-X. WEI and D.F. THOMAS* 283

Confocal Imaging of Porous Silicon with a Scanning Laser MACROscope/Microscope
by A.C. RIBES, S. DAMASKINOS, A.E. DIXON, K.A. ELLIS, S.P. DUTTAGUPTA and P.M. FAUCHET 295

Influence of HF Treatment of Si on Surface Electron Kinetics
by S. GRABTCHAK and M. COCIVERA 305

Identification of the Adsorption Sites of Molecular Oxygen on Si(111) using XPS
by B. LAMONTAGNE, D. ROY, R. SPORKEN and R. CAUDANO 315

Structural and Electronic Properties of Sulfur Passivated InP(100)
by C.E.J. MITCHELL, I.G. HILL, A.B. McLEAN and Z.H. LU 325

XANES Studies of III-V Semiconductor Surface Passivation
by Z.H. LU* 335

Study of In-situ Surface Cleaning for Si and SiGe Epitaxy on Si with a Novel Ion Beam Vapor/Assisted Deposition Technique
by S. MOHAJERZADEH, C.R. SELVAKUMAR, D.E. BRODIE, M.D. ROBERTSON and J.M. CORBETT 347

Surface Charge Spectroscopy and its Applications
by R.W.M. KWOK and W.M. LAU 357

Characterization of Elastic Strains in Semiconductor Heteroepitaxial Layers by HREM
by M.D. ROBERTSON†, J.M. CORBETT and J.B. WEBB 377

5. Other Topics 387

On the Multiple Peaks in Charge-Transfer Probability versus Laser Frequency in the Theory of Laser Assisted Surface Ion Neutralization
by F.O. GOODMAN* and H. NAKAMURA 389

Adhesion to Mineralized Tissue: Bonding to Human Dentin
by M. DiRENZO, T.H. ELLIS, E. SACHER and I. STANGEL 407

---

* Invited Speaker ¶ Hobson Prize † Best-Poster Prize